



# UNITED STATES PATENT AND TRADEMARK OFFICE

*Handwritten signature*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,833	06/10/2002	Howard Green	H0535/7013	5763
23628	7590	04/04/2006	EXAMINER	
WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2206			NAFF, DAVID M	
			ART UNIT	PAPER NUMBER
			1651	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/031,833

Applicant(s)

GREEN ET AL.

Examiner

David M. Naff

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 20, 22 and 74-77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 20, 22 and 74-77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1651

**DETAILED ACTION**

An amendment of 3/3/06 amended claims 1, 4, 9, 10, 13 and 20.

Claims examined on the merits are 1-13, 20, 22 and 74-77, which are all claims in the application.

5       The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C.

112:

10       The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15       Claims 1-13, 20, 22 and 74-77 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey  
20       to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Support is not found in the specification for defining R as an "organic or inorganic molecule" as recited in claims 1, 9 and 20. The page and line should be pointed out where the specification recites "R  
25       is an organic or inorganic molecule".

***Claim Rejections - 35 USC § 112***

Claims 1-13, 20, 22 and 74-77 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly

Art Unit: 1651

point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are confusing and unclear as to molecules that are R and not R by reciting in claims 1, 9, and 20 "R is an organic or inorganic molecule". All molecules are either organic or inorganic, which makes the definition of R meaningless since no molecules are excluded as R. The specification does not define R as being any organic or inorganic molecule.

Dependent claims 8 and 76 are confusing by not having clear antecedent basis in the claims on which they depend for dihydroxyacetone being a reactive moiety.

#### ***Response to Arguments***

In response to dependent claims 8 and 76 reciting "dihydroxyacetone", applicants urge that reactive moieties  $X_1$  and  $X_2$  in claims 1 and 9 are being further limited. However, claims 1 and 9 define  $X_1$  and  $X_2$  as being selected from specific moieties. None of the moieties recited in claims 1 and 9 appear generic to dihydroxyacetone. Without a moiety in claims 1 and 9 being generic to dihydroxyacetone, dependent claims 8 and 76 are not further limiting the moieties in claims 1 and 9, but are requiring a moiety different than selected from the group in claims 1 and 9. Such dependent claims are improper.

#### ***Claim Rejections - 35 USC § 102***

Claims 1, 2, 5-7, 9-11, 20, 74, 75 and 77 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Green et al (6,267,957 B1).

Art Unit: 1651

The claims are drawn to a composition comprising a compound having a structure of the formula  $X_2-L_2-A-L_1-X_1$ , wherein A is an agent,  $L_1$  and  $L_2$  are linkers or bonds,  $X_1$  and  $X_2$  are reactive moieties selected from specific moieties containing an R molecule selected from organic and inorganic molecules.  $X_2$  and  $L_2$  can be absent leaving  $A-L_1-X_1$  as the compound. Also claimed is a method of attaching an agent to a body tissue using the compound, and a pharmaceutical composition containing the compound and a carrier.

Green et al disclose attaching agents to proteinaceous material such as body tissue. The agent can be provided with a functional group to facilitate attachment (col 9, lines 21-25). Functional groups can be provided by reacting the agent with a bifunctional cross-linker (col 9, lines 34-40). The cross-linker can be disuccinimidyl suberate or bis(sulfosuccinimidyl) suberate (col 9, lines 45-47).

When providing the agent of Green et al with a function group using disuccinimidyl suberate or bis(sulfosuccinimidyl) suberate, a compound, compositions and method as required by the present claims will result. The agent of Green et al can be an enzyme (col 6, line 57) or a nonprotein (col 27, line 28), can be in a pharmaceutical composition (col 13, line 29), and a microparticle does not have to be present. Green et al intend using the agent in a method of attaching the agent to tissue. Furthermore, it would have been obvious to select disuccinimidyl suberate or bis(sulfosuccinimidyl) from the cross-linkers disclosed by Green et al to provide a functional group

Art Unit: 1651

on the agent, and use the functional group-containing agent for attaching to tissue or in a pharmaceutical composition as suggested by Green et al.

### ***Response to Arguments***

5 Applicants urge that Green et al is not anticipatory since Green et al does not teach the specific molecules that are the reactive moieties of the compound of the claims. However, when the agent of Green et al is reacted with disuccinimidyl suberate or bis(sulfosuccinimidyl), a free succinimidyl group as contained by Bis-  
10 N-hydroxy-succinimide shown by Formula II on page 6 of the present specification will remain as a reactive group for reacting with a protein. This free succinimidyl group will be the reactive moiety D disclosed on page 3 of the present specification, which is a specific reactive moiety of the claims. The present specification discloses  
15 (page 22, lines 19 and 20) the cross-linkers, disuccinimidyl suberate as bis(sulfosuccinimidyl), as linkers that can be used. The claims do not exclude the reactive moiety X<sub>1</sub> being an un-reacted succinimide of a bi-functional cross-linker that has been reacted with the agent.

### ***Claim Rejections - 35 USC § 103***

20 Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al.

The claim requires a kit comprising a package housing, a container containing the composition of claim 1 and instructions for use.

25 Green et al disclose providing a kit (col 2, line 31).

When providing the agent of Green et al with a functional group using disuccinimidyl suberate or bis(sulfosuccinimidyl), it would have been obvious to put the functionalized agent in a kit for later use. Putting instructions on the kit would have been obvious to enable one  
5 to use the kit properly.

***Claim Rejections - 35 USC § 103***

Claims 3, 4, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al in view of Cheng et al (6,080,566).

10 The claims require the agent to be an enzyme that degrades nerve agents. The enzyme can be OPAA anhydrolase or OPA anhydrase.

Green et al is described above.

Cheng et al disclose degrading nerve agents with OPAA or OPA (col 1, lines 50-55).

15 It would have been obvious to use as the enzyme agent of Green et al an OPAA or OPA enzyme to obtain its function to degrade a nerve agent as suggested by Cheng et al.

***Claim Rejections - 35 USC § 103***

Claims 8 and 76 are rejected under 35 U.S.C. 103(a) as being  
20 unpatentable over Green et al in view of Fusaro (3,920,808).

The claims require dihydroxyacetone as a functional moiety of the compound.

Green et al is described above.

Fusaro discloses dihydroxyacetone as being reactive with amino  
25 derivatices of protein in human skin (col 2, lines 52-65).

5 In response to the rejections of dependent claims 3, 4, 8, 12, 13, 22 and 76, applicants assert that since Green et al does not disclose the compound of claims, these rejections are moot. However, for reasons set forth above, Green et al disclose the claimed compound, or render the claimed compound obvious.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15           A shortened statutory period for reply to this final action is  
set to expire THREE MONTHS from the mailing date of this action. In  
the event a first reply is filed within TWO MONTHS of the mailing date  
of this final action and the advisory action is not mailed until after  
the end of the THREE-MONTH shortened statutory period, then the  
20 shortened statutory period will expire on the date the advisory action  
is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be  
calculated from the mailing date of the advisory action. In no event,  
however, will the statutory period for reply expire later than SIX  
MONTHS from the date of this final action.



Art Unit: 1651

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

5 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see [http://pair-](http://pair-direct.uspto.gov)  
15 [direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David M. Naff  
Primary Examiner  
Art Unit 1651

20 DMN  
3/31/06